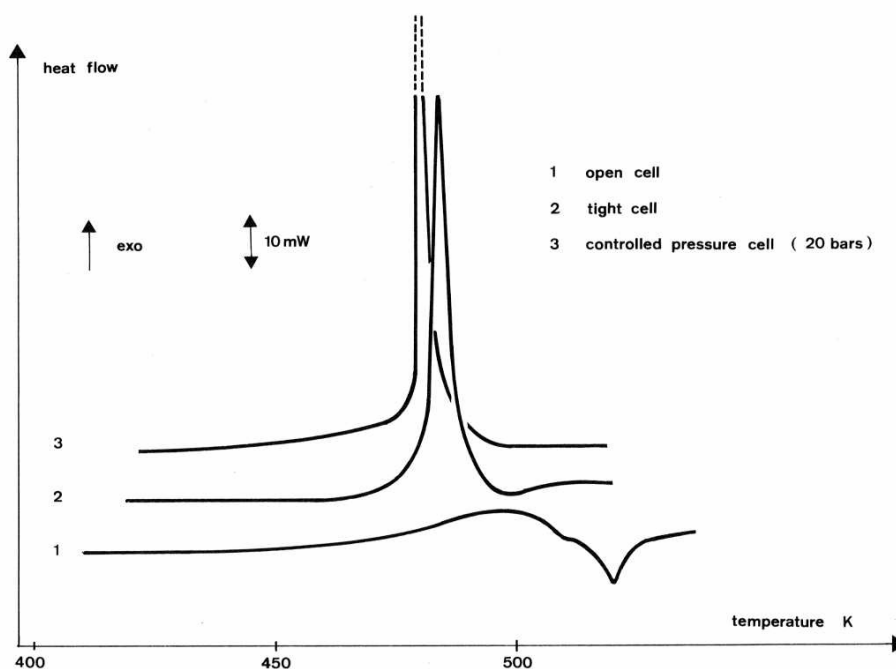


## Thermal stability study by Sensys DSC: influence of pressure on the thermal stability of azodicarbonamide

### Introduction:

Azodicarbonamide formula is  $\text{NH}_2 - \text{CO} - \text{N} = \text{N} - \text{CO} - \text{NH}_2$ . The compound belongs to the family of azo dyes. Azodicarbonamide decomposes at about  $200^\circ\text{C}$ . But the decomposition phenomena largely depends on the pressure above the sample. Different tests are run in an open crucible, a sealed crucible and a controlled high pressure crucible, in order to show that the pressure on the sample has a great influence on the decomposition rate.



### Experimental :

Sample : Azodicarbonamide

Mass : 3.0 mg

Crucible : - Sealed stainless steel  
- Alumina (open)  
- Controlled HP crucible

Heating mode :  $5 \text{ K}\cdot\text{min}^{-1}$ .

### Instrument :

Sensys evo DSC ( -  $120$ , +  $830^\circ\text{C}$ )  
in horizontal configuration.

### Conclusion:

Azodicarbonamide, when heated in an open crucible, is weakly decomposed at about  $500 \text{ K}$ , before evaporating. In a sealed crucible, the decomposition phenomena is much more violent, and no more vaporisation is detected.

When using the controlled HP crucible (pressure =  $20 \text{ bars}$ ), the decomposition rate is modified and becomes very high.



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